

Information on BAPEDAL DONOR PROJECTS

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Bureau for Planning, BAPEDAL

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No. 01

Project Name	: Institute and Human Resources Development in Environment-Kalimantan
Acronym	: ProLH Kalimantan
Project Category	: a. Institutional Development/or and Human Resources Development
Donor	: German Agency for Technical Cooperation (GTZ)
Term	: April 1, 1991 - August 1999
Type (Grant / Loan)	: Grant
Budget	: DM 12,492,000
Responsible	: Secretary to the State Minister of Environment / Executive Secretary
Relating Directorate	: MenLH / Bapedal
Project Summary	<p>: The project is to assist the local Governments in the four Provinces of Kalimantan to establish environmental management institutions through institutional strengthening and human resources development and thereby contribute to sustainable management of natural resources.</p> <p>Following the establishment of Bapedaldas at Province Level in Kalimantan in 1998, the project has provided technical support to the new institutions in selected environmental fields.</p>
Objective	: Bapedaldas in the four Provinces of Kalimantan are capable to effectively carry out selected environmental management tasks.
Scope of Work	<p>: 1. Develop and apply concepts for institutional and human resources development;</p> <p>2. Carry out certain practical tasks in environmental management especially in environmental participatory planning;</p> <p>3. Apply tools for communication and facilitate processes of cooperation;</p> <p>4. Develop and implement training in environmental management.</p>
Expected Output	<p>: <u>Phase I (1991 - 1994)</u></p> <p>1. Training concepts;</p> <p>2. Training of Trainer;</p> <p>3. Transfer of knowledge to Decision Makers;</p> <p>4. Curriculum and Training Material.</p> <p><u>Phase II (1994 - 1997)</u></p> <p>1. Establishment of Environmental Service Unit (ESU);</p> <p>2. Testing of Instruments for Spatial Environmental Management System (SEMS);</p> <p>3. Implementation of Training of Trainer (ToT);</p> <p>4. Transfer of Knowledge to Decision Makers;</p> <p>5. Human Resources Development;</p> <p>6. Dialogue between Kalimantan and Pusat concerning Environmental Management.</p>

	<p><u>Phase III (1997 - 1999)</u></p> <ol style="list-style-type: none"> 1. Bapedaldas at Tk.I and Tk.II in Kalimantan are supported in the field of institutional development; 2. Bapedaldas are technically supported in carrying out selected specific provincial environmental tasks in Kalimantan; 3. Communication, participation and information exchange on environmental problems in Kalimantan are facilitated by involving decision makers in government institutions, private and community sectors; 4. Training capacity for environmental personnel in Kalimantan is increased; 5. Unit Kalimantan in Bapedal is supported in carrying out its tasks.
<p>Current Situation</p>	<p>: Project is basically on track, however, due to the economic and political development of the country which has delayed the establishment of Bapedalda at both levels of administration, the instruments of environmental management at local level were not fully applied as set out in the work plan.</p> <p>The planning tool of spatial environmental management (P5LHD, now PPLHD) was finally endorsed by both the Ministry of Environment and the Ministry of Interior (Bangda).</p> <p>The project was instrumental in conducting training course on environmental management personnel of 50 Districts nationwide.</p>
<p>Future Work Plan</p>	<p>: With the new Law on Decentralization (UU No. 22 / 99) the project will focus even more than in the past on strengthening environmental capacities at District level in Kalimantan, particularly in assisting in the design of a strategy for implementation.</p>
<p>Note</p>	<p>: The project's current phase terminates 31 August 1999. It is the intention of the Governments of the Republic of Indonesia and the Federal Republic of Germany to continue their cooperation in the field of environment in the form of an Environmental Program after August 1999. This will include the continuation of selected activities of the present project as well as elements of other on-going Indonesia - German technical cooperation projects in the field of environment such as PROKASIH, PRODUKSIH and ECOLABEL.</p>

No. 02

Project Name	: Environmental Management Center (Pusarpedal)
Acronym	: EMC
Project Category	: a. Institutional development and/or human resources development; b. Capacity building in environmental monitoring.
Donor	: Japan International Cooperation Agency (JICA)
Term	: January 1, 1993 - March 31, 2000
Type (Grant / Loan)	: Grant
Budget	: The budget of technical cooperation managed by JICA contains 5 experts (6 experts after 1994) / year, 5 C/Ps training/year, about ¥ 15 million/year for equipment, about ¥ 15 million/year for project operation. ¥ 2.8 billion for building and facilities was granted before the starting of technical cooperation.
Responsible	: Head of Pusarpedal
Relating Directorate	: Pusarpedal
Project Summary	: This project is to support Bapedal to develop and establish the EMC (Pusarpedal) as the central reference laboratory, which is equipped with monitoring laboratories and training/information facilities. JICA experts in the field of environmental analysis and environmental information have been assisting Pusarpedal to implement programs for environmental quality monitoring, technical training on sampling, laboratory analysis, quality assurance and control, and database development for environmental monitoring purposes.
Objective	: The objective of the project is to strengthen the capability of environmental analysis in the fields of water pollution, air pollution, and toxic substances so that Pusarpedal may function as the central reference laboratory as well as to develop the environmental information system and the skill of environmental training for human resources development in primarily governmental organizations concerned, in order to improve the quality of environment in the Republic of Indonesia by supporting the environmental administration of Bapedal.
Scope of Work	: 1. <u>Dispatch of Japanese Experts:</u> The scope of the Japanese technical cooperation is to provide technical guidance and advice to the Indonesian counterpart personnel who are engaged in such EMC programs as the central reference laboratory, the environmental information system, the environmental training. The technical guidance and advice are given to the Indonesian counterpart personnel by the long term experts on: (a). Water Pollution, (b). Air Pollution, (c). Toxic Substances, and (d). Environmental Information as well as the Chief Advisor and the Coordinator. Such fields as training and laboratory management are covered by the short term experts, when necessary, who support the smooth and successful implementation of the Project.

	<p>2. <u>Provision of Machinery and Equipment:</u> Machinery, equipment and other materials necessary for the implementation of technical transfer are provided. The necessary budget has been arranged every year in coordination and consultation with the JICA experts.</p> <p>3. <u>Training of Indonesia Counterpart Personnel in Japan.</u> The Indonesian counterpart personnel connected with the Project are trained in Japan. Nomination of the candidate has been carried out every year in coordination and consultation with the JICA experts.</p>
<p>Expected Output</p>	<p>: The expected project output is to develop the capability of Pusarpedal staff members in the following items as much as possible:</p> <ol style="list-style-type: none"> 1. Pusarpedal will secure technology necessary for environmental monitoring activities in the fields of air pollution, water pollution and toxic substances and for the environmental monitoring database; 2. Pusarpedal as the reference laboratory will perform the role of the technical center for environmental monitoring and inspection for industries and will analyze pollutants by the sophisticated technique and offer analytical services to others; 3. Pusarpedal will develop an environmental monitoring database which owns a mechanism that regional and local laboratories report their monitoring data to Pusarpedal, and publish the present state of environmental quality in Indonesia; 4. Pusarpedal will provide the training for regional and local laboratories which perform many types of environmental monitoring and environmental inspection activities addressed to industrial plants in the coordination and cooperation with local governments.
<p>Current Situation</p>	<p>: The JICA experts have conducted the following technical cooperation with counterparts for about six and a half years:</p> <ol style="list-style-type: none"> 1. To transfer such technologies as planning of environmental monitoring activities, sampling, pretreatment, analysis, data handling, evaluation, report writing, development of environmental monitoring database, and its operation; 2. To visit local laboratories and government organizations with EMC staff in order to identify their activities and to provide the necessary technical guidance to them; 3. To assist Pusarpedal technical staff in preparing their reports which include the necessary environmental information for Bapedal policy development and environmental management; 4. To assist Pusarpedal staff in collaborating with other donor's environmental projects whose purpose are to strengthen Bapedal's capability in environmental management; 5. To assist Pusarpedal members in planning, organizing and evaluating the Pusarpedal training activities addressed to local laboratories; 6. To assist Pusarpedal members in preparing the curriculum and textbooks for training courses.

	<p>In the extension period, which started in the beginning of 1998, following matters have been focused especially:</p> <ol style="list-style-type: none"> 1. Consolidation of the basis as a full-fledged national reference laboratory; 2. Developing the capability for training activities in the field of environmental monitoring subjects.
Future Work Plan	<p>: Future work plan should be made in taking consideration not only the results of technical cooperation which have been conducted by JICA, but also the need of Indonesian government for the improvement of the environment.</p>
Note	<p>: 1. With the progress of other projects such as the RMCD/OECF and the AusAID/RELD, the role of Pusarpedal as the central reference laboratory has become more and more clear and important. Pusarpedal should make more efforts in the formation and establishment of network with regional and local laboratories through such activities as laboratory training, technical assistance and quality control, monitoring data analysis and evaluation as well as standardization of analytical methods;</p> <p>2. The final evaluation mission of JICA will visit Bapedal/Pusarpedal in October 1999. They will make evaluation of the project from such points as (i) Effectiveness, (ii) Impact, (iii) Efficiency, (iv) Rationale, and (v) Sustainability.</p>

No. 03

Project Name	: Water Quality Management - Musi & Mahakam PROKASIH
Acronym	: WQMMM Phase II
Project Category	: a. Technology development / transfer for environmental impact control; b. Capacity building in environmental monitoring.
Donor	: German Agency for Technical Cooperation (GTZ)
Term	: Phase I : March 1, 1993 - Feb 24, 1996 Phase II : March 1, 1996 - August 31, 1999
Type (Grant / Loan)	: Grant
Budget	: Phase I : DM 6,650,000 Phase II : DM 5,600,000
Responsible	: Director for Water & Soil Pollution, Deputy II
Relating Directorate	: Directorate for Water & Soil Pollution Control
Project Summary	: The GTZ PROKASIH project is to assist the BAPEDAL Pusat develop capability for the foreseen Bapedaldas in East Kalimantan and South Sumatera and to support the PROKASIH programs in these provinces. As long as Bapedaldas are not established the BLHs are the counterpart institutions in the provinces. Germany has a history of natural resources development and the management of donor projects in these provinces and this project focuses on capacity building in industrial pollution control and water resources management.
Objective	: 1. To introduce reliable monitoring of river water quality and industrial wastewater discharges and in this context to improve the performance of laboratories in charge for the analytical work; 2. To support law enforcement with regard to industrial pollution control; 3. To raise awareness for the importance of sustainable water resources management among government institutions, industries and other private sector enterprises and the general public. Project purposes is to elaborate on a concept for "Water Quality Management" in the regions.
Scope of Work	: 1. Development of reference laboratories according to standard required: a. To enable the laboratory personnel in the provinces to analyze stipulated parameters independently; b. To function laboratory quality management. 2. Establishment of a monitoring system for river water quality and pollution sources: a. To conduct regular and industry monitoring; b. To establish elaborated procedures for "Legal Sampling" and guidelines for elaborated self-monitoring.

3. Improvement of monitoring data interpretation skills and facilities:
 - a. To enter monitoring data into the data banks according to Bapedal standards;
 - b. To conduct international training.
4. Preparing a campaign concept and materials for campaigns to raise the awareness of potential polluters (industry, mining, population) for the importance of river water quality:
 - a. To process experience of Environmental Audits to sector guidelines, in cooperation with the responsible department of the Ministry of Industry;
 - b. To make PROKASIH strategies available for the Ministry of Industry, Mining, Agriculture, Forestry and Public Works.
5. Elaboration of a concept for water quality management:
 - a. To formulate a concept for the dissemination of PROKASIH data at province and district level;
 - b. To establish an inventory of all water use license at the Environmental Bureaus in Samarinda and Palembang;
 - c. To make available a proposal for water quality management approved by the local government.
6. Elaboration and implementation of a concept for the process-oriented consultancy for the provincial environmental agency in Samarinda and Palembang:
 - a. Etc. not yet elaborated.

Expected Output

1. Development of reference laboratories according to standard required:
 - a. In the provinces stipulated parameters shall be analyzed by 12/97;
 - b. Laboratory quality management is functioned by 12/97.
2. Establishment of a monitoring system for river water quality and pollution sources:
 - a. Regular river and industry monitoring is conducted 3/96 to 9/99;
 - b. Procedures for "Legal Sampling" and a guideline for self-monitoring are elaborated.
3. Improvement of monitoring data interpretation skills and facilities:
 - a. Four counterparts in each project component can enter monitoring data into the data banks according to Bapedal standards by 12/96;
 - b. International training for 2 top level persons, 4 medium level persons and 6 staff level persons are conducted.
4. Preparing campaign concept and materials for campaigns to raise the awareness of potential polluters for the importance of river water quality:
 - a. Experience of Environmental Audit is processed to sector guidelines in cooperation with the responsible department of Ministry of Industry by 9/98;
 - b. PROKASIH strategies are available for the Ministry of Industry, Agriculture, Forestry and Public Works by 9/98.

	<p>5. Elaboration of a concept for water quality management:</p> <ul style="list-style-type: none"> a. A concept for the dissemination of PROKASIH data at province and district level is formulated by 5/96; b. An inventory of all water uses license is established at the Environmental Bureau in Samarinda and Palembang by 12/98; c. A proposal for water quality management approved by the local government is available by 7/99. <p>6. Elaboration and implementation of a concept for the process-oriented consultancy for the provincial agency in Samarinda and Palembang:</p> <ul style="list-style-type: none"> a. Etc. not yet elaborated.
<p>Current Situation</p>	<p>: Project implementation in Phase II is on schedule. Administrative procedures for Phase II (Project Agreement - Verbal note) shall be completed until June 1997. As the project organization does not foresee permanent GTZ personnel at Bapedal, cooperation has been established over the years on a part time basis. It is strongly believed that especially in the remaining time of Phase II a substantial input of Bapedal is required with regard to continuous information exchange and guidance in order to harmonize project approaches with national policies and strategies. Important examples are the promotion and implementation of the 'Self-Monitoring Principle' for industries and in this context the support of adequate law enforcement in the industrial pollution control sector.</p>
<p>Note</p>	<p>: Phase II of WQMMM will end in August 1999. Also the present implementation phases of other Bapedal-GTZ cooperations (ProLH, Produksih and Ecolabel) are ending at this time. The planning for the future cooperation, starting in 1999, shall be commenced in this year.</p>

No. 04

Project Name	: Bapedal & East Java Pollution Control Implementation Project
Acronym	: PCI
Project Category	: a. Technology development/transfer for environmental impact control; b. Institutional development and/or human resources development; c. Program development for environmental impact management; d. Capacity building in environmental monitoring; e. Public awareness on environment.
Donor	: Australian Agency for International Development (AusAID)
Term	: November 30, 1993 - June 30, 1999
Type (Grant / Loan)	: Grant
Budget	: AUD \$ 20.690.000
Responsible	: Vice Chairman, Bapedal
Relating Directorate	: Deputy 1, 2, 3 and 4, East Java Bapedalda
Project Summary	: This project provides technical advisors, fellowships & training, public awareness and demonstration projects, and program support to both Bapedal Pusat and to the Bapedalda and the East Java Provincial Government. Technical assistance focuses on air and water pollution control, hazardous waste management, and environmental awareness and public relations programs and a variety of other training activities in Australia and Indonesia that focus on developing skills required for the implementation of pollution control and environmental management.
Objective	: The purposes of the project is to improve Indonesia's environmental protection capability and to encourage environmentally sustainable development through the implementation of its pollution control programs. The specific objective is to develop the operational framework and enhance the capability of the Bapedal and the Provincial Government of East Java to implement pollution control programs, and to explore how the project may assist in setting up a local pollution control agency (Bapedalda).
Scope of Work	: The purposes and objective are being achieved through the provision of: 1. Assistance to Bapedal and East Java in the design and implementation of national and local pollution control strategies and programs; 2. Environmental improvement demonstrations and technology support in East Java; 3. Public awareness in pollution control, especially in East Java; 4. Training and human resources development for Bapedal, East Java and related bodies; 5. Project management gender equity and publications.

Expected Output	<ul style="list-style-type: none"> : 1. Strategies programs and procedures to implement Bapedal air and water pollution control and hazardous waste management requirements; 2. Operational East Java Bapedalda; 3. Operational technology demonstrations in East Java; 4. Increased environmental public awareness and programs in East Java; 5. Trained operational staff in Bapedal and East Java Bapedalda; 6. Environmental information center in East Java; 7. HRD systems in Bapedal and East Java Bapedalda; 8. Enhanced environmental management and monitoring capabilities.
Current Situation	<p>: The PCI Project will be completed on 30th June 1999, Bapedal Vice Chairman Drs. Sukardi chaired the final Australia - Indonesia Project Coordinating Committee Meeting on Monday, 17th May 1999.</p> <p>A draft Project Completion Report (PCR) has been submitted for consideration and comment. The PCR details all activities of the Project over 5 1/2 years, and the outcomes achieved.</p>
Future Work Plan	<p>: Virtually all planned activities of the PCI Project have been completed. Project assets and equipment will be formally handed over to Bapedal at the end of June.</p>
Note	<p>: The Australian Government, through AusAID, will continue to support environmental management in Indonesia, mainly through the Bapedal Wilayah Denpasar Project (begun May 1999) and the East Java Bapedalda Project due to begin early 2000.</p>

No. 05

Project Name	: Produksi Bersih & Ecolabel Project
Acronym	: PRODUKSIH & ECOLABEL
Project Category	: a. Technology development/transfer for environmental impact control; b. Institutional development and/or human resources development; c. Public awareness on environment.
Donor	: German Agency for Technical Cooperation (GTZ)
Term	: April 1, 1994 - July 31, 1996 (PRODUKSIH Phase 1); August 1, 1996 - October 1, 1996 respectively - August 31, 1999
Type (Grant / Loan)	: Grant
Budget	: DM 4,200,000
Responsible	: Director for Technical Development, Deputy IV
Relating Directorate	: Directorate for Technical Development
Project Summary	: Both projects are to materialize the integral environmental protection by means of a product and process oriented approach. Main focus will be the technical information of all stakeholders in implementing pollution prevention and cleaner production programs with selected industries. Training and practical technology transfer for Life Cycle Analysis, Cleaner Production technology and Environmental Management System are targeted at small scale and medium scale industries.
Objective	: 1. Overall Goal; The participating industries are producing more environment friendly and more efficiently. 2. Project Purpose. - Industries of selected sectors apply process integrated environmental protections; - A system of instruments of product related environmental protection, capable of development, is applied in selected industries.
Scope of Work	: The projects cover three major fields: 1. Product related environmental protection; 2. Cleaner Production; 3. Environmental Management System. Within each of the fields: 1. Demonstration and model projects respectively will be carried out in cooperation with the industry (Target Group: small and medium sized enterprises of the textile, leather and paper industry); 2. Guidelines based on the demo projects are to be elaborated; 3. Training programs based on prepared curricula and further educational material are supposed to be conducted (Target Group: Bapedal, Specialist Institutions, Consulting Industry and Industry); 4. Infrastructure measures have to be set up (Accreditation and Certification scheme for ISO 14000 and preparations for ECOLABEL scheme).

<p>Expected Output</p>	<p>: In general:</p> <ol style="list-style-type: none"> 1. A certain number of companies take part in an Eco audit program which will lead to a substantial improvement of the environmental performance; 2. A certain number of companies have conducted Life Cycle Analysis and committed themselves to improve the environmental performance of their respective product; 3. Bapedal has been acknowledged as a qualified contact in environmental related matters. <p>Therefore the following results are expected to be achieved:</p> <ol style="list-style-type: none"> 1. The technical and managerial know how of Bapedal in the field of product and process related environmental protection is strengthened; 2. The consultant and advisory capability of the private consulting industry and the responsible specialist institutions is strengthened; 3. A public awareness program is developed and implemented; 4. A basis for a national accreditation and certification scheme for corporate EMS is established; 5. Bapedal's framework on Eco Labeling mechanism is introduced to all stakeholders; 6. An Eco Label information service is introduced to all stakeholders; 7. Environmental criteria and test methods have been established; 8. A procedure of voluntary "self commitments" is developed.
<p>Current Situation</p>	<p>: Produksih Phase II and Ecolabel have been merged in this phase and the results were changed as mentioned in Expected Output. Most of the results have been achieved and in the rest of this project phase I more short term expert visit is planned to cover results number 5, 6 and 8.</p>
<p>Future Work Plan</p>	<p>: At the moment planning activities are carried out for a future phase. In this phase the project will be included in a wider Bapedal - GTZ program. Regarding this project an implementing phase will start in September to implement the tools in the textile and leather companies, which have been achieved in this phase.</p>

No. 06

Project Name	: Regional Monitoring Capacity Development Project
Acronym	: RMCD
Project Category	: d. Capacity building in environmental monitoring
Donor	: Overseas Economic Cooperation Fund, Japan (OECF)
Term	: November 29, 1994 - November 29, 1999
Type (Grant / Loan)	: Loan
Budget	: Yen 2.935 billion
Responsible	: Director for Environmental Laboratory Development, Deputy IV
Relating Directorate	: Directorate for Environmental Laboratory Development
Project Summary	: This project is to assist Bapedal to develop environmental and pollution control monitoring and training capability in 39 regional environmental laboratories. The project is to be affiliated with Pusarpedal, the Environmental Management Center (EMC) at Serpong and to include technical assistance to develop regional monitoring and reporting.
Objective	: The objective of the RMCD Project is to strengthen selected regional laboratories, owned by the Government Departments of Health, Industry and Trade and Public Works, to enable them to produce nationwide a continuous flow of accurate and reliable environmental monitoring data for Bapedal. This objective will be achieved by providing equipment, staff training and consulting services. An effective and efficient linkage will be created between the regional laboratories and Pusarpedal for training, operation and maintenance of equipment and transfer and compilation of monitoring data.
Scope of Work	: The scope of work can be divided into: 1. Review of current status of regional laboratories taking into account present physical condition, equipment currently held and its utilization and human resources available; 2. Determination of the equipment requirements and writing the specifications for tender to procure such equipment; This is achieved by taking the current status into account and the proposed higher level that is desired to be attained, together with Bapedal's requirements and the parameters desired to be measured; 3. Delivery and installation of the equipment to the Regional Laboratories; 4. Establishment of a Quality Management System to ensure the continued operation and maintenance of the equipment;

	<p>5. Development of a Monitoring System including cost recovery evaluation enabling laboratories to charge sustainable commercial rates for analytical services and hence maintain their equipment and consumables for ongoing operation.</p>
<p>Expected Output</p>	<p>: 1. To provide assistance and recommendations to ensure the upgrading of regional laboratories to a standard able to accept the equipment provided;</p> <p>2. To give recommendations to Bapedal on the type and quantity of laboratory equipment and provide technical specifications to be included with the tender documents;</p> <p>3. To assist Bapedal in the training of personnel from the regional laboratories by supervising the technical training provided by vendors of equipment and providing additional training on the operation, calibration, maintenance and minor repairs of the equipment. In particular this will be developed using the resources of Pusarpedal;</p> <p>4. To assist Bapedal establish an Environmental Monitoring Data Base;</p> <p>5. To assist Bapedal to develop a cost recovery system, standardized rate of fees for monitoring services and maintenance and consumables budgets for ongoing operation;</p> <p>6. To assist Bapedal in developing a procedure for preparation of Provincial Environmental Monitoring Plans and the National Environmental Monitoring Plan.</p>
<p>Current Situation</p>	<p>: 1. The project has been in progress for 34 months of an initially proposed 36 months duration;</p> <p>2. The initial 6 months Inception Phase has been fully completed;</p> <p>3. The Laboratory Preparation phase of 8 months has also been completed;</p> <p>4. The Engineering and Design Phase has proceeded for 31 months and is nearing completion;</p> <p>5. The current activities center around the finalization of the Tender Process for the procurement of the monitoring equipment. Technical and Financial Proposals have been received from Tenderes and after evaluation, recommendation has been made for the appointment of the successful tenderes to be awarded the contracts.</p>
<p>Future Work Plan</p>	<p>: 1. The last step in the Engineering and Design Phase is the final approvals for the contracts to be let and the Letters of Award to be issued;</p> <p>2. The Training Phase commenced in September 1997 with a Diploma I Course in Environmental Analysis at the IPB. This was successfully completed in March 1998. Further training will proceed with Vendor training on the equipment provided;</p>

3. The Monitoring System Development Phase commenced in August 1998 with the start of the development of a monitoring and reporting system to enable efficient handling, transfer and storage of environmental monitoring data;
4. The Procurement and Installation Phase is scheduled to commence in June 1999 after the successful letting of contacts to manufactures/supplies for the two packages. The delivery and installation of the equipment is scheduled to continue until the middle of 2000.

Note

1. The RMCD Project has built upon the resources provided by the Regional Laboratory Development Planning, Certification and Training Program (BDTAP 5)
2. The RMCD is part of a nationwide development program by Bapedal to strengthen sixty (60) regional laboratories, throughout the country. The RMCD Project is responsible for thirty nine (39) laboratories while the other twenty one (21) are covered by an AusAID Project (RELD Project). The need for close communication with the AusAID Project is appreciated and assistance will be given to Bapedal to ensure the overall aim of achieving a nationwide compatible and standardized system be realized.

No. 07

Project Name	: Collaborative Environmental Project in Indonesia
Acronym	: CEPI
Project Category	: a. Technology development/transfer for environmental impact control; b. Institutional development and/or human resources development.
Donor	: Canadian International Development Agency (CIDA)
Term	: July 1, 1996 - March 31, 2001
Type (Grant / Loan)	: Grant
Budget	: Cdn \$ 18,000,000
Responsible	: Deputy for Institutional & Human Resources Capacity Building
Relating Directorate	: Directorate for Institutional Development
Project Summary	: The CEPI project provides Canadian and local advisors to Bapedal Pusat, MenLH and to Bapedal Wilayah in Sulawesi. Assistance to regional government agencies in Sulawesi will focus on the top priority environmental issues. Training programs and environmental research will be carried out by university environmental study centers. Demonstration and pilot projects are to address priority issues and the technical and management needs of small and medium scale industries for pollution control.
Objective	: The objective of the project is to contribute to Indonesia's effort to achieve sound environmental management of the development process by strengthening capacity at national and sub-national levels to ensure the effective implementation and promotion of environmental policies and programs.
Scope of Work	: The project is to strengthen capacity in environmental management through technical assistance involving short and long term advisors to national and sub-national levels on specific environmental issues, education and training involving graduate studies, practical attachments, faculty exchanges, and pilot/demonstration projects to illustrate appropriate techniques for resolving environmental problems.
Expected Output	: The project objective will be achieved through an institutional strengthening strategy which integrates technical assistance, education and training and practical pilot/demonstration projects to develop a cadre of qualified and experienced environmental experts to cooperatively support Indonesia's long term environmental objectives.

Current Situation	: The Inception Report was approved in December 1996 and long term advisors were fielded in January 1997. All long term advisors for Bapedal Pusat have completed their assignments, including Marine Pollution Control, Air Pollution Control, Cleaner Production and Environmental Assessment. Short term advisors for Bapedal Wilayah III including Aquaculture, Marine and Coastal, Wastewater, Mining, Land Use Management and Media Communications are ongoing in Sulawesi. Ten (10) Indonesian graduate students have entered Canadian Universities, and pilot/demonstration projects have been selected for implementation.
Future Work Plan	: CEPI will conclude its activities in December 2000. Advisor follow-up work with Bapedal Pusat will be completed in 1999. Short term advisor work begun in 1997 will continue with Bapedal Wilayah III until December 2000. Advisorships in Biodiversity Mapping with Ministry of Environment will begin in 1999, with work on Natural Resources Accounting and Women in Development continuing to December 2000. Indonesian Ph.D and Masters graduate students are undertaking their thesis research in Sulawesi. Pilot and demonstration project have been selected and will begin implementation in 1999.

No. 08

Project Name	: Regional Environmental Laboratory Development, H-43
Acronym	: RELD - H43
Project Category	: a. Capacity building in environmental monitoring; b. Institutional development and/or human resources development.
Donor	: Australia
Term	: July 1997 - December 2000
Type (Grant / Loan)	: Loan
Budget	: Aus \$ 34,265,100
Responsible	: Director for Environmental Laboratory Development, Deputy IV
Relating Directorate	: Directorate for Environmental Laboratory Development
Project Summary	: This project is to assist Bapedal to develop 21 regional laboratories as part of Repelita VI requirement to develop 60 laboratories.
Objective	: The objective of the Project is to establish 21 regional laboratories to have the capacity and capability to participate in the Bapedal program to set up a national environmental monitoring and analysis network.
Scope of Work	: 1. Project Management; 2. Training; 3. Procurement of Equipment; 4. Delivery and Maintenance.
Expected Output	: 21 laboratories whose personnel are able to carry out environmental monitoring and analysis of their regional area.
Current Situation	: 1. <u>Installations</u> 20 labs are now equipped to measure environmental parameters in aqueous samples (physical, metals, organic). 13 labs also equipped to measure common pollutants in Ambient Air (NO _x , SO _x , CO, Hydrocarbons, Wind Speed, Wind Direction, Relative Humidity, Temperature and TSR). 4 labs also equipped for isokinetics and gas stack monitoring. All equipment is state-of-the-art. 2. <u>Training</u> 3 x 2 month training Campaigns at Serpong completed for around 120 people (Water Analysts and Samplers, Air Analysts and Samplers, LIMS Operators, Quality Managers and Laboratory Attendants). - 56 candidates to finish: Post Graduate Diploma at the University of Queensland by December 1999. - 4 candidates to finish: Masters degree. - 1 candidate to complete Ph.D. (IELTS at 5.5 required). Training in English at British Council Jakarta.

	<p>Full testing program at 15 labs completed in April 1999, which included Proficiency samples, river water sampling and Ambient Air analysis.</p> <p>3. <u>Maintenance and Service Contract</u> (to December 2000) Engineering visits every 4 months.</p>
Future Work Plan	<p>: June - September 1999:</p> <ol style="list-style-type: none">1. Conduct a further testing program in July/August/September 1999 aimed a monitoring at real environmental problems;2. Initiate status reporting for Bapedal;3. Develop a standardized reporting system to handle data;4. Utilize EMC staff to carry out on site follow up and assistance.
Note	<p>: It is disappointing that other projects directly overlap with RELD and in 2 cases provides the same equipment i.e. the Air Pollution Control Directorate/Austrian Project will continuously monitor Ambient Air in Jambi. Jambi BLK is already equipped to do this. PU laboratory in Mataram has been provided with a fully equipped monitoring van for field water analysis when RELD has already provided one. This is a complete waste of funds and resources. There appears to be a little or no coordination of environmental projects across government departments and also within Bapedal itself. A central register of projects including scope and objectives is needed.</p>

No. 09

Project Name	: Bapedal Regional Network Project - Project Coordination and Monitoring
Acronym	: BRNP - PCM
Project Category	: Institutional development and human resources development
Donor	: Asian Development Bank (ADB)
Term	: April 21, 1999 - April 20, 2002
Type (Grant / Loan)	: Loan
Budget	: US \$ 1,088,209.06
Responsible	: Deputy for Institutional and Human Resources Capacity Building
Relating Directorate	: Directorate for Institutional and Human Resources Development
Project Summary	<p>: Bapedal Regional Network Project was established by the Presidential Decree No. 77/1994 to establish regional institutional capacity for setting environmental quality standards, to provide regionalized environmental support services, to improve public awareness, and to strengthen its role as the national environmental impact management center.</p> <p>The role of the Project Coordination and Monitoring Specialist is to support and strengthen the capacity of the Bapedal Project Management Office functions in the implementation of the Project.</p>
Objective	<p>: 1. Best practice in project implementation;</p> <p>2. A project implementation plan to monitor and successfully implement the project and ensure the effectiveness of consulting services, construction work, and supplier services in an integrated manner.</p>
Scope of Work	<p>: 1. Advise and assist Bapedal in project administration;</p> <p>2. Advise and assist Bapedal in project management;</p> <p>3. Advise and assist Bapedal in project coordination and monitoring.</p>
Expected Output	<p>: 1. A project management system to ensure the smooth and efficient operation of the project management office as part of Bapedal management;</p> <p>2. Day to day project monitoring activities and project evaluation;</p> <p>3. Progress reports on periodical basis, including annual project review;</p> <p>4. Key summary reports to be prepared in Bahasa Indonesia.</p>
Current Situation	<p>: The project is still in its initial phase. While the PCM consultant and the EMS consultant have commenced their work, construction management consultants have not yet been appointed. Similarly the Bapedal Project Management Office is in a very early stage and first coordination meetings with all stakeholders are planned for June 1999.</p>

Future Work Plan

- : 1. To establish regular meetings with parties involved including the Bapedal Wilayahs;
2. To clearly define objectives and activities of all stakeholders;
3. To communicate objectives, exchange of information and encourage active involvement of all parties;
4. To produce project master plan which will be formulated by reviewing project development plan of all consultancy services and Bapedal Wilayah.

No. 10

Project Name	: Bapedal Wilayah Denpasar Institutional Strengthening Project
Acronym	:
Project Category	: a. Institutional developemnt and/or human resources development; b. Public awareness on environment; c. Program development for environmental impact management; d. Capacity building in environmental monitoring.
Donor	: AusAID
Term	: May 1, 1999 -
Type (Grant / Loan)	: Grant
Budget	: AUD 1,800,000 (Phase I)
Responsible	: Head of Bapedal Wilayah II
Relating Directorate	: Bapedal Wilayah II
Project Summary	: Capacity building for environmental management in Bali, NTB (Nusa Tenggara Barat, NTT (Nusa Tenggara Timur) and East Timor.
Objective	: To strengthen capacity of Bapedal Wilayah II and other agencies in the four (4) provinces to manage environmental problems. Public awareness of environmental issues.
Scope of Work	: Action learning programs and on-the-job training in Bali, NTB, NTT and East Timor with concentration on Bapedal Wilayah II.
Expected Output	: a. Strengthened Bapedal and other agencies in environmental sector; b. Public awareness; c. Strategic plan for Bapedal Wilayah II.
Current Situation	: Project has just begun.
Future Work Plan	: 1. Communications strategy for stakeholders in environmental sector; 2. Strategic plan for Bapedal Wilayah II; 3. Technical studies; 4. Gender issues study; 5. Workshop for environmental planning.

No. 11

Project Name	: Bapedal Regional Network Project - Environmental Management Services Project
Acronym	: BRNP - EMS
Project Category	: a. Institutional development and/or human resources development; b. Program development for environmental impact management; c. Public awareness on environment.
Donor	: Asian Development Bank (ADB)
Term	: May 17, 1999 - May 16, 2000
Type (Grant / Loan)	: Loan
Budget	: USD 500,010
Responsible	: Deputy for Institutional and Human Resources Capacity Building
Relating Directorate	: Deputy for Environmental Pollution Control, Deputy for Law Enforcement and EIA, Center for Environmental Data and Information, Center for Education and Training and Environmental Impact Management Facilities, and Regional Managers
Project Summary	: The EMS Project is a one year package of technical assistance by international and national advisors to prepare recommendation to assist Bapedal in its professional development and environmental impact management activities.
Objective	: To provide recommendations to Bapedal on: <ol style="list-style-type: none"> 1. A detailed methodology and implementation plan for setting regionally appropriate environmental quality standards and pollution limits for different sources of pollution in the four regions; 2. A system and procedures for national accreditation and certification of business applying internationally acceptable environmental management practices; 3. Designs for modern public libraries, audio visual, meeting and seminar rooms, and demonstration pilots of environmental technologies and cleaner production practices in Head Office and the three regional offices.
Scope of Work	: Includes five stages within each of the three components, viz.: <ol style="list-style-type: none"> 1. Data collection and analysis together with the development of initial concepts; 2. Workshops to test and obtain feed-back on stage 1 work; 3. Analyze workshop outputs and develop draft recommendations for the 3 component areas; 4. Workshop draft recommendations; 5. Prepare final recommended designs and implementation plans.

Expected Output	<p>: The outputs shall include the standards methodology, accreditation and certification system and environmental information center designs, together with implementation plans for each, as required by the TOR.</p> <p>In addition the Team will produce "user friendly" procedures manuals, "self learning" training packets, and "knowledge transfer" notes for each of these areas.</p>
Current Situation	<p>: Mobilized May 17, 1999. Proceeding with data collection and analysis in each of the 3 components and preparing inception report.</p>
Future Work Plan	<p>: See stage description above.</p> <p>Stage 1 → month 1 - 4</p> <p>Stage 2 → month 5</p> <p>Stage 3 → month 6 - 8</p> <p>Stage 4 → month 9</p> <p>Stage 5 → month 10 - 12</p>
Note	<p>: EMS Project will coordinate with other BRNP Projects, particularly the PCM, Building and MIS Project.</p>

No. 12

Project Name	: BAPEDAL Regional Network Project, Management Information System
Acronym	: BRNP - MIS
Project Category	: a. Institutional development and/or human resources development; b. Program development for environmental impact management; c. Technology development/transfer for environmental impact control.
Donor	: Asian Development Bank
Term	: June 1, 1999 - June 30, 2001
Type (Grant / Loan)	: Loan
Budget	: USD 920,000
Responsible	:
Relating Directorate	:
Project Summary	: See Below
Objective	: a. To assist Bapedal establish regional institutional capacity for setting environmental quality standards, providing regionalised environmental support services, and improving public awareness; b. To strengthen Bapedal's role as the national environmental impact management center for policy formulation and implementation through program institutional and human resources development at regional and national levels.
Scope of Work	: 1. Establishing a network of four regional Bapedal offices in Jakarta, Pekanbaru, Denpasar and Ujung Pandang, which includes technical facilities; 2. Fostering human resources development through the provision of technical, managerial and administrative training for selected Bapedal staff at the regional and national levels; 3. Setting regionally appropriate environmental quality standards and pollution limits; 4. Establishing in the four regional Bapedal offices: i. appropriate information management systems and networks including regional environmental database linked to the national database in Jakarta; ii. public education and demonstration facilities for promoting environmental awareness; iii. certification and accreditation systems. The project also includes provision for consulting services.
Expected Output	: See Scope of Work

Current Situation	: All of the Australian Based Consultants are currently preparing for uplift. Once uplift details are finalized more information will be provided.
Future Work Plan	: This will be made available, once the Australian based consultants have commenced their assignments in Indonesia.

CONTACT

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17 プロジェクト全期間の活動について（概要）

第1章 活動実績

EMCは、インドネシアの環境分野を代表する研究・研修機関として、バペダルを技術面でサポートする機関として位置づけられている。

本プロジェクトは、EMCがその役割を担うことが出来るよう、そのために必要とされる技術のなかでも最も基本的でな技術である環境モニタリング技術の移転を主たる目標としている。

プロジェクト期間は当初5年間で予定していたが、更に2年3カ月延長し、7年3カ月間となっている。

この間、プロジェクトはEMCの活動全般について支援しており、具体的には以下の3つに分けられる。

1. 総合的な環境モニタリング技術習得の支援（以下、「環境モニタリング活動」という）
2. 地方ラボ等に対し行う環境モニタリング技術のトレーニングに対する支援（以下、「トレーニング活動」という）
3. モニタリング技術を生かした調査研究に対する支援（以下、「調査研究活動」という）

これら3つの活動のうち、2及び3の活動は、モニタリング技術をある程度習得して初めて可能となる。従って、プロジェクトの開始当初は、1の活動に集中してきた。

7年余りの間にわたるプロジェクトの活動期間を、前期（当初の5年計画の前半）、中期（当初の5年計画の後半）、後期（延長期間）に区分し、上記1～3のそれぞれの活動を振り返る。

1. 環境モニタリング活動

プロジェクト発足時点では、①モニタリングに関し、豊富な経験を持つEMC職員がほとんどいなかったこと、②プロジェクト開始当初の3年程度の間には大幅な新規職員の採用が見込まれていたこと、などから技術移転の方法としては、まず3ラボ（大気、水質、有害物質）のそれぞれにおいて、指導的立場に立つ者を選び、その指導者を主たる対象として、長期専門家が技術移転を行い、

分析経験の浅い者や新規採用者への技術指導は、主にその指導者を通して行う、という方針で進めることとなった。従って、前期では、各ラボの指導者に対する技術移転が活動の中心となった。

中期に入ると、各ラボの指導者は、ある程度のモニタリング技術を習得できたため、プロジェクトでは、指導者から若手職員への技術指導の支援を行うとともに、指導者自身に対しては、ガスクロなどを使ったより高度な分析技術の指導を行った。

後期に入ると、中期までに習得した各モニタリング項目について、どのような性状の試料でも正確な分析が行えるよう、汚染の種類、濃度の異なる様々な試料を現場サンプリングし分析を行った。また、これら分析過程で培われた技術を文書として表現することにより、分析精度の統一向上を図ることとし、このため、SOP（標準的モニタリング操作指針）などの技術マニュアルの作成指導も行った。

なお、モニタリング技術の指導にあたっては、対象とするモニタリング項目に適したサンプリング地域を関係機関の意見を聞くなどにより選定し、サンプリング計画の作成からモニタリングデータの解析・評価、レポート作成に至るまでの総合的なモニタリング技術の移転が行えるよう配慮した。

2. トレーニング活動

EMC内の指導者が若手職員を指導できるようになった中期頃から EMC 職員による地方ラボ等へのトレーニングが開始されるようになった。しかし、その当時、EMC職員のモニタリング技術はまだ未熟であったため、EMC 職員の技術向上が優先され、地方ラボへのトレーニングについては時間的な制約等から充分できなかったのが実情である。

EMC 職員のモニタリング技術がある程度確立された、後期の初め頃から、地方ラボ等に対するトレーニングが本格的に行われるようになった。ただし、オーストラリアエイド及びOECEより地方ラボへ納入される予定であったモニタリング機材の納入が遅れたため、現在までのトレーニングは、地方ラボに現存する機材で測定可能なモニタリング項目が中心となっている。

トレーニング方式については、EMCに地方ラボ職員等を集め、EMC職員が講師となって実施することを基本としているものの、より効果的に技術移転を行う観点から、①トレーナーズ・トレーニング、②ドナー間協力による特定分野のトレーニング、③地方機関との共催によるトレーニング、④フィールドでの実務トレーニングなど、様々な方式を採用してきた。

3. 調査研究活動

調査研究については、正確なモニタリング技術の習得が前提となることから、モニタリング技術がある程度習得できた、中期頃から活動を開始している。

調査研究の内容は、大別すると「環境管理の向上等を目的としたもの」と「基準等の改定のための基礎データを得ることを目的としたもの」とがある。

(1) 環境管理の向上等のための調査研究

中期では、比較的環境汚染の進んだフィールドを選んで環境モニタリングを行い、その結果から汚染の特性や人体への影響を考察するという調査研究が行われた。

(例) カリマンタン島カプアス川水銀調査、ジャカルタ湾のヘドロ中の有機スズ調査等

後期に入ると、中期から行われている EMC の自主的な調査研究に加え、行政機関からの依頼に基づく調査研究が行われるようになった。すなわち、環境汚染が社会的に問題となった地域において環境モニタリングを行い、その結果を踏まえ、健康などへの影響評価を行う、あるいは汚染源との関係を把握するなどを目的とした調査研究である。

(例) 森林火災に関する調査研究、シア河水質汚染に関する調査研究、ボゴール水銀汚染に関する調査研究等。

②基準改定等に必要基礎データを得るための調査研究

中期以降、「熱帯地域に適したBODの分析方法」や「有機汚濁指標としてのTOCの有効性等の調査研究」を実施している。

第2章 活動の評価

EMC のこれまでの活動を、第1章の区分に従いそれぞれ評価する。

1. 環境モニタリング活動

現在、EMCでは、環境基準項目、排出基準項目のうちの重要な項目については、ほとんど総て分析できるようになっている。

その他、森林火災時のヘイズモニタリングの経験により、大気中の微量有害化学物質（PAH、VOC等）などの分析も可能となっている。

一方、分析の精度に関しては、最近行われた、第3者機関による分析精度の審査結果でもかなり正確な分析が行えるようになっている。

また、フィールドでのモニタリングについても、その結果を系統立てて報告書としてとりまとめることが出来るようになるなど、総合的な環境モニタリング技術の向上が推察される。

また、プロジェクトの最終年度（99年度）には、EMCが環境ラボとして国際的なレベルに達したことを国内外に認知してもらうため、国際認証（ISO25）を取得することとし、このため、カナダのCEPIプロジェクトの協力も得ながらトレーニングを行っている。

以上のことから、インドネシアの環境に関するリファラン斯拉ボとして今後学ぶべき技術は多々あるが、リファラン斯拉ボとしての最低限の技術をEMCは習得したように思われる。

2. トレーニング活動

トレーニング専任のJICA長期専門家をプロジェクト全期間にわたり確保出来なかったこと、地方ラボへの機材供与が大幅に遅れたことなど、トレーニングの指導を行う環境整備が充分整わないまま今日に至っている。

こうした状況にもかかわらず、延長期間に入りトレーニングの開催回数や参加者が大幅に増加したこと、トレーニング用教材についてはかなり充実してきたこと、また効率的なトレーニングを行う観点から様々なトレーニング手法が試みられていることなど評価できる面も多い。

一般に、人材育成は拙速に進めるのではなく、長期にわたる合理的な計画を作成し、これに沿って進めていくべきである。また計画の作成にあたっては、トレーニングを受ける側とトレーニングを授ける側の双方のコンセンサスを得ることが重要である。

この点については、本プロジェクトの場合、トレーニング選任のJICA長期専門家が不在であったことなどにより、トレーニング全般にわたる長期計画について充分議論されないまま今日に至っている。従って、トレーニングを効果的に行うため、この様な長期計画を関係者間で協議して決めることが重要である。

3. 調査研究活動

(1) 環境管理の向上等のための調査研究

最近になり、バペダルなど行政機関からの調査研究依頼が増えたことは、EMCのモニタリング技術が向上したことをバペダル本庁が認めたことを表わしている。このような行政からの依頼は、以下の2種類に区分できる。

①環境汚染源や汚染原因物質などがはっきりしており、このため、環境モニタリングデータを提出し、汚染による健康影響や生態系影響を予測することがEMCに求められるケース（例：ボゴール郊外ポンコル地域の水銀汚染）

②事故原因が不明な突発的な水質事故が生じた場合において、事故原因物質の特定、事故原因汚染源の特定がEMCに求められるケース（例：リアウ州シア河の水質事故）

①の場合、汚染物質を分析し、そのデータを健康影響等との観点から評価すればおおむね対応可能であり、現在のEMCの実力でも対応することがある程度可能である。

一方、②の場合、事故の状況に応じて、サンプリングすべき地点の選定、サンプリング対象（水、底質、魚等）の選定、分析すべき項目の選定を的確かつ迅速に行う必要がある。そのためには、第1に、汚染地点の周辺（河川の場合、流域）における発生源のインベントリーが整備されていることが重要である。第2に、発生源インベントリーを用いて、事故の状況に応じた的確なモニタリング調査を行うため、汚染物質の環境中での挙動に関する知見などを習得しておくことが重要である。しかし、現時点では、発生源のインベントリーが不十分であること、また、たとえ発生源のインベントリーがあったとしても、汚染物質の環境中での挙動に関する知見の習得が不十分であるため、この様な種類の調査研究の本格実施は、今後の課題である。

なお、こうした突発的な事故のほか、多数の汚染源からの多数の物質による慢性的な汚濁が各地で進行しており、こうした慢性的な汚濁の改善はバペダルや地方環境行政部局が早急に取り組むべき課題である。慢性的な汚濁の改善対

策を立案するためには、水質汚濁機構解明等に関する調査研究が不可欠であり、このような調査研究も今後EMCが取り組むべき重要な課題である。

(2) 基準改定等に関する調査研究

EMCは、これまでいくつかの項目を対象として、基準改定等の基礎資料を得るための調査研究を実施している。一般に、このような調査研究は、極めて行政との関わりが強い分野であるため、EMCの調査研究成果を基準改定などに繋げていくためには、調査研究開始当社から、関係行政部局とEMCとからなる特別の委員会を設けるなどして、行政との連携を密にしながら進めていくことが望ましい。

4. 総合評価

環境モニタリング活動、トレーニング活動、調査研究活動の3つの活動のうち、環境モニタリング活動については、おおむね目標を達成できたが、トレーニングについては、外部要因の影響をうけたこともあり、十分な成果を得るにはいたっていない。また、研究活動については、EMCの設立当初には研究部がなかったこと、研究を行う前提としてモニタリング技術を確立する必要があることなどから、プロジェクトの主要目標とはなっていなかった。しかし、研究活動は、今後のEMC発展のための重要な分野であり、その準備という面では、プロジェクトはかなり成果を上げたと考えられる。

なお、プロジェクトの活動成果については、国際会議等で発表され、また印刷物としてとりまとめたうえで関係行政機関等へ配布されており、今後、行政機関が中心となって環境改善等を進めていく際、役立つものと考えられる。